

1. An endovascular heat transfer device, comprising:
 - a working fluid supply, including a gear pump;
 - a flexible catheter capable of insertion to a selected vessel in the vascular system of a patient;
 - a heat transfer element attached to a distal end of said catheter, said heat transfer element comprising a plurality of heat transfer segments, each said heat transfer segment being encompassed by a smooth surface; and
 - an inner tube disposed within said heat transfer element, said inner tube being connected in fluid flow communication with said gear pump.
2. The device recited in claim 1, wherein said gear pump is a helical tooth gear pump.
3. A heat transfer device, comprising:
 - a flexible catheter capable of insertion to a vessel in the vascular system of a patient;
 - a plurality of heat transfer segments attached to a distal end of said catheter;
 - a flexible joint connecting each of said heat transfer segments to adjacent said heat transfer segments; and
 - a smooth flexible tube connecting at least some of said heat transfer segments to adjacent said heat transfer segments.
4. An endovascular heat transfer device, comprising:
 - a flexible catheter capable of insertion to a selected vessel in the vascular system of a patient;
 - a heat transfer element attached to a distal end of said catheter, said heat transfer element comprising a plurality of heat transfer segments, each said heat transfer segment being encompassed by a smooth surface; and

an inner tube disposed within said heat transfer element, said inner tube being adapted to supply heat transfer fluid to the interior of said heat transfer element.